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**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF UTAH**

THE SCO GROUP, INC.

Plaintiff/Counterclaim-Defendant,

v.

INTERNATIONAL BUSINESS  
MACHINES CORPORATION,

Defendant/Counterclaim-Plaintiff.

**DECLARATION OF CHRIS SONTAG  
IN SUPPORT OF REPLY  
MEMORANDUM REGARDING  
DISCOVERY**

[Docket No. 203]

**(REFILED IN REDACTED FORM)**

Case No. 2:03CV0294DAK  
Honorable Dale A. Kimball  
Magistrate Judge Brooke C. Wells

1. My name is Chris Sontag and I am Senior Vice President and General Manager of The SCO Group, Inc. My office is located in Lindon, Utah. Unless otherwise noted or evident from their context, this Declaration is based on my personal knowledge and information available to me from reliable sources. To the best of my knowledge, information and belief, the facts set forth herein are true and correct.

2. This Declaration responds to and rebuts the position asserted in IBM's Response to SCO's Memorandum Regarding Discovery, and in the Declaration of Joan Thomas ("Thomas Decl.") [Exh. A to IBM Response ("IBM. Resp.")].

3. IBM claims that producing the materials SCO requests will take "months" *Thomas Decl.* ¶ 3. This is grossly exaggerated. Producing the materials SCO requests, almost all of which are available on IBM's computerized Configuration Management Version Control (CMVC) system, should not take more than a few weeks.

#### **A. IBM's Configuration Management Version Control (CMVC)**

4. SCO needs IBM to produce all revision control system information (including documents, data, logs, files, and so forth) for AIX and Dynix/ptx from 1984 to the present, and log information for all interim and released versions of AIX and Dynix/ptx from 1984 to the present, in a usable, searchable format. Specifically, SCO requires IBM to produce:

A. Source Code Control System's (SCCS) data files related to AIX, in the same format and organization as stored in CMVC and

B. the SCCS directory hierarchy used by CMVC,

all on standard format (ISO-9660 with RockRidge extensions) DVDs; as well as

C. Any other AIX- and Dynix/ptx-associated information stored on CMVC and/or RCS.

5. According to IBM, the CMVC system “provides configuration management, version control, change control, and problem tracking in a distributed environment to facilitate project-wide coordination of development activities across all phases of the product development life cycle.” *CMVC Introduction [Initial Mem., Exh. 7]*. In short, CMVC maintains all versions of a particular program, and tracks changes to and problems with that program entered by multiple users.

6. CMVC can be accessed at remote locations, and includes tracking information about source files, defects, and features. *Overview of AIX Source Control* (1710013143)[Exh. 1].

7. CMVC also records author information, so that every time a programmer enters information onto CMVC, the programmer’s name is recorded, as well as the date of the entry and what action was taken. IBM’s Redbook, *Did You Say CMVC?*, Sept. 1994, at 9 [Exh. 2]; Email from Adrian Mitu of IBM Canada, Aug. 19, 1993 (located at <<http://www.cs.queensu.ca/Software-Engineering/blurb/cmvc>>) [Exh. 3].

8. According to at least one IBM employee, several functions of CMVC are designed for fast, simple access to revision history of software programs. For example, the “VC” (Version Control) function of CMVC “eliminates confusion when looking for a particular source code file belonging to a particular product”. Email from A. Mitu [Exh. 3].

9. Another IBM employee explains the “advantage of CMVC is its versatile development process that can be configured for small, medium and large projects. The process

can also be configured to meet the needs of each stage of development. . . ." *A Versatile Development Process for Small to Large Projects Using IBM CMVC*, Seong R. Yu [Exh. 4].

10. CMVC information for AIX is contained on a single CMVC server at IBM. *Thomas Decl.* ¶ 7.

11. IBM exaggerates the burden it faces in producing the CMVC information SCO requests. CMVC is designed so that multiple engineers may easily access the system, log in and out with changes and modifications, and continue to develop AIX without delay or disruption. *See CMVC Introduction [Initial Mem.*, Exh. 7]. If CMVC could work only in the extremely slow way IBM alleges, IBM's daily business operations would be hindered.

12. IBM uses the flexibility and sophistication of CMVC in its marketing efforts, claiming that IBM uses automated scripts to incorporate fixes and changes daily. *IBM-Siebel Marketing* [Exh. 5] at 23.

13. IBM has produced a limited set of the prior versions and releases (and copies only of currently supported versions: 4.3, 5.1, and 5.2), and few if any maintenance modifications.

14. By selecting only certain versions to produce, IBM created more work for itself as IBM had to search its CMVC system for the correct code that constituted the produced versions and releases. IBM's decision to extract only selected releases of AIX and Dynix/ptx for production was more burdensome for IBM to carry out than simply giving SCO access to all the CMVC information.

15. There are often two methods of solving a particular problem in computer science: "top down" and "bottom up". In Thomas' description of IBM's burden, IBM is proposing to use a bottom-up approach, which is overly laborious, and an unnecessary expenditure of time and

resources. IBM's bottom-up approach requires IBM to look at all parts of its CMVC database to find directories that SCO wants.

16. Because CMVC has a database component, IBM's approach requires it to query the database to find the required directories by specific file name. The problem with this approach is that the database query may find too many directories.

17. As an analogy to the burdensome task IBM assigns itself, when searching on Google, a large number of search matches may be returned, some of which *do not satisfy* the constraints the searcher wants, but *do satisfy* the exact wording of the request. Thus, the search results must often be refined to match the searcher's constraints more precisely; otherwise, many unsatisfactory matches must be examined needlessly. The same is true of IBM's proposed solution to the SCO's requested CMVC discovery.

18. However, continuing the Google analogy, if the searcher instead knows the website he is searching for, he would simply go to that web page directly, instead of using Google. Only if the website option is not available are the extra burdens of searching required. Here, the extra burdens of searching are not required because there is "website option"; that is, CMVC overlays IBM's SCCS hierarchy, so IBM can collect all AIX information based on that hierarchy using directory names. *Thomas Decl.* ¶¶ 9-10. No searching is required, simply a look-up of AIX files by the name "AIX."

19. This "top-down" approach will not only work, but will be sufficient and is the most time- and labor-efficient means for IBM to collect the CMVC information SCO requires.

20. For example, consider the following file tree (which is a part of the AIX tree for AIX version 5.1), produced by IBM:

**FIGURE 1**

**REDACTED**

21.

**REDACTED**

22. The file tree in Figure 1 shows the layout of SCCS for all versions of AIX, meaning that AIX directories are easily recognizable.

23. The CMVC system overlays SCCS hierarchy. Thus, CMVC, organized by IBM's SCCS hierarchical method, looks similar to Figure 1. Therefore, any directory (or "tree limb") associated with "AIX" (here, it is called AIX510) will fall within SCO's requests, and should be produced. This method of seeking and collecting directories responsive to SCO's requests is a top-down approach.

24. The CMVC system is analogous to the Lexis/Nexis or Westlaw systems. Each is a database system containing data to be accessed remotely by multiple users. Searches are conducted in each system to locate particular data maintained in each database. Each uses tools

for user interfacing, allowing searches of the databases. Each court decision recalled from Lexis/Nexis or Westlaw is like a computer file stored as text in CMVC. For example, searching for AIX on CMVC might be compared with searching the Utah State Reporter System. Within the AIX directory/subdirectory tree, searching for the directory “src” might be compared with searching a particular Utah district. A subdirectory may be searched which would be analogous to searching a Judge’s name.

25. IBM’s internal CMVC documents prove that SCO’s top-down approach will be significantly less burdensome than the approach IBM assumes. IBM’s *Overview of AIX Source Control* (1710013143) [Exh. 1] reveals that CMVC material is generally maintained in a hierarchical structure. IBM’s SCCS, based on a file tree structure, can find all directories associated with AIX stored in SCCS format on CMVC.

26. IBM could write a “script” (as IBM defines it, a small computer program) (*Thomas Decl.* ¶ 9) to seek out and collect the relevant CMVC information. For SCCS hierarchical data, writing this “script” and running it should take no more than one day (not weeks or months), and for competent IBM engineers familiar with CMVC, probably less.

27. In the alternative, IBM can use standard archival tools to determine the locations of the SCCS directory hierarchies related to AIX, and make copies. These tools basically say “I want everything under these directories” and then copy all of the files in those directories. Thus, this procedure is neither burdensome nor time-consuming.

28. If IBM follows this top-down approach to collecting the information SCO has requested, the burdens IBM describes in its Response and the accompanying Declaration of Joan Thomas – as to time and effort – will be significantly lessened.

29. IBM asserts that it will need to confirm that the directories extracted from CMVC are actually part of the AIX operating system. *Thomas Decl.* ¶ 9. Especially for SCCS hierarchical data, this review is entirely unnecessary, and serves only to falsely inflate IBM's estimate of the time and burden required to produce the materials SCO requests. First, these files will be produced under a protective order.

30. More importantly, if the files are labeled in CMVC as being part of AIX – or otherwise identified as being required to do any of the AIX releases – then the directories are relevant and responsive to SCO's requests, and should be produced.

31. IBM also provides a misleading time estimate in stating that to copy AIX information from data tapes onto DVDs or CDs would take "many additional weeks", after the "many weeks" already taken to collect the information. *Thomas Decl.* ¶ 11. This is grossly exaggerated.

32. Ms. Thomas admits in her Declaration that all files on CMVC containing AIX operating system source code constitute only 40 gigabytes of data. *Thomas Decl.* ¶ 10. This amount of data will easily fit onto a typical laptop computer (running UNIX) or a typical portable hard drive, both of which have at least 40-60 gigabytes of disk space, or onto 10 DVDs.

33. It takes less than 1 hour to burn a single DVD, and transferring AIX data from CMVC onto 10 DVDs should take approximately one day. Therefore, the most efficient alternative for both SCO and IBM is for IBM to copy the AIX directories onto ten standard format (ISO-9660 with RockRidge extensions) DVDs, as this standard format can easily made by IBM and easily used by SCO, and does not take a great deal of time to complete.

34. In sum, it should not take IBM more than two days to extract and copy the relevant SCCS hierarchical data onto 10 DVDs.

**B. Format of Tapes Produced by IBM**

35. IBM claims that the “high-capacity storage tapes” it initially produced to SCO “are standard throughout the computer industry.” *IBM Resp.* at 10; *Thomas Decl.* ¶ 11. This is not entirely accurate. While many sites still use the tapes used by IBM, ISO-9660 DVDs or CD-ROMs are the current standard interchange format, and IBM’s initial production was not in this format. Since IBM’s tapes and ISO-9660 DVDs each hold roughly the same amount of information, and since DVD burners are far less expensive than tape drives, it should be no hardship for IBM to produce the data in DVD form.

**C. Sequent’s Revision Control System (RCS)**

36. Sequent used a system similar to IBM’s CMVC and SCCS called Revision Control System (RCS) to track the revision history of Dynix.

37. IBM does not state where it maintains revision history information for Dynix/ptx, or whether IBM still uses RCS. Thomas’ Declaration states only that Dynix information is not maintained on CMVC. *Thomas Decl.* ¶ 5.

38. RCS is an open-source program, and easily available to IBM.

39. IBM has not stated that the Dynix/ptx source code RCS database is shared with any other projects, so IBM should be able to simply copy the entire Dynix/ptx RCS database without review or extraction, and without taking any of the steps it claims are required for the

AIX CMVC source code database. Even if RCS is not currently maintained, unless IBM has intentionally deleted the RCS database, the database can be provided without burden. Therefore, IBM would not bear any burden in producing Dynix/ptx information, if that database still exists or has been archived.

#### **D. Programmer's Notes and Design Documents**

40. Programmer's notes and design documents are often stored in the CMVC or SCCS change logs. Ms. Thomas confirmed that IBM stores programmer's notes and design documents on CMVC. *Thomas Decl.* ¶ 12. Therefore, these programmer's notes and design documents can be produced as part of IBM's production of CMVC data.

41. As explained in my 56(f) Declaration (¶ 53), programmer's notes contain the thought processes of individual programmers as they write and revise code sequences. For example, programming notes might list changes made to code, and might list additional changes to consider. As such, programming notes provide detailed rationale for code changes and an indication of how the code may change in the future. Programming notes are often formatted as "readme" files that are saved in the same directory as the corresponding source code files.

42. As explained in my 56(f) Declaration (¶ 52), design documents are often prepared by the group that ultimately authors the changes to the code sequences, and explain the initial code concepts, and how such code will be developed and written. As such, design documents provide an invaluable bridge between existing code sequences, such as in UNIX, and derivative works, such as in AIX and Dynix.

43. Therefore, programmer's notes and design documents might contain admissions as to reliance on structure, sequence and organization that could connect UNIX System V to modifications in AIX and Dynix/ptx, and thus point SCO to hot spots of copying in Linux.

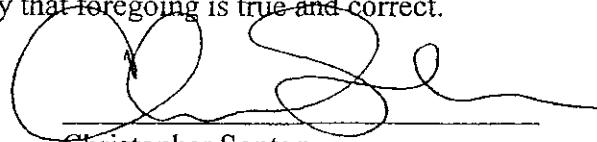
44. Programmer's notes and design documents may significantly shortcut the other procedures of painstaking manual line-by-line code comparisons which SCO has used and continues to use to find evidence relevant to its claims and defenses, which are extremely time- and labor-intensive procedures.

45. SCO has used tools that are capable of taking minor changes in lines of code into consideration in finding literal copying. Ultimately, however, these tools can provide only an indication of where an experienced programmer should look in order to perform an intelligent manual comparison. Consequently, extensive manual work is still required.

46. With production of the materials SCO's requests in its Initial Memorandum, SCO's need to use these onerous tasks will be significantly lessened.

I declare under penalty of perjury that foregoing is true and correct.

Executed: July 12, 2004



Christopher Sontag

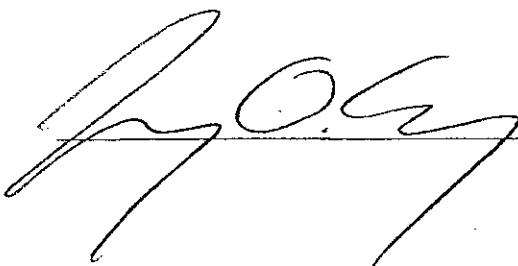
CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of Chris Sontag's Affidavit of July 12, 2004 was served on Defendant International Business Machines Corporation on this 12<sup>th</sup> day of July, 2004, by placing it in U.S. Mail, first class postage prepaid, to:

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A handwritten signature in black ink, appearing to read "D. J. Rosenberg".

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I hereby certify that a true and correct copy of Chris Sontag's Affidavit in Support of Reply Discovery Memorandum was served on Defendant International Business Machines Corporation on this 12<sup>th</sup> day of July, 2004, by placing it in U.S. Mail, first class postage prepaid, to:

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A handwritten signature in black ink, appearing to read "DJR", is written over a horizontal line. The signature is fluid and cursive, with a large, stylized 'D' on the left and a smaller 'R' on the right.

**CERTIFICATE OF SERVICE**

Plaintiff/Counterclaim Defendant, The SCO Group, Inc., hereby certifies that a true and correct copy of the foregoing was served on Defendant IBM on the 5<sup>th</sup> day of July, 2005 by U.S. Mail to:

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